Thermal non-equilibrium plasma during a solar flare

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Plasma in the solar corona is believed to be in thermal equilibrium because of the occurrence of weak Coulomb collisions. To date, many studies have discussed the plasma dynamics in the solar corona assuming thermal equilibrium. Most phenomena observed in the solar corona can be explained under this assumption because the available temporal resolution is not sufficient to resolve non-equilibrium conditions. After Hinode was launched, a very high temporal resolution became available, especially for spectroscopic observation. Now, we can discuss plasma heating or acceleration in the solar corona using extreme-ultraviolet (EUV) spectroscopic observations with high time resolution. Further, we can also observe the solar corona at multiple wavelengths with high spectral resolution. Owing to Hinode observations, we can now discuss plasma dynamics under thermal non-equilibrium conditions, such as non-equilibrium ionization. In this talk we will discuss Thermal non-equilibrium plasma during a solar flare oberved by Hinode.

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